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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
BURCH, MELODY M	

ART UNIT	PAPER NUMBER
3683	

DATE MAILED: 01/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/925,774	BELL ET AL.	
	Examiner	Art Unit	
	Melody M. Burch	3683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 October 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,3,5-10,13-18 and 21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2,3,5-10,13-18 and 21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 August 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: in line 13 of paragraph 22 "road" should be changed to --load--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 18 is rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 5091679 to Murty et al.

Murty et al. show in figures 1, 2, and 4 a method of shock absorption comprising the steps of: moving a wheel 4 in a first direction, generating an electromagnetic force in a second direction opposing the first, controlling the movement of the wheel through the electromagnetic force, generating electromagnetic energy from the movement of the magnetized plunger, and selectively storing the electromagnetic energy based on an amount of movement of the wheel as disclosed in col. 4 lines 39-41, in col. 1 lines 49-52, in col. 2 lines 44-46, in col. 4 lines 53-56 and in figure 7.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 2, 3, 5-7, 13-15, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5091679 to Murty et al. in view of JP-4300709.

Re: claims 2, 3, 5, and 13. Murty et al. show in figures 1, 2, and 4 a vehicle suspension assembly comprising: a shock absorber comprising a magnetized element 12, a conductive coil 14a,b,c disposed about the magnetized element, forming a circuit, a vehicle support 5 attachable to a wheel 4 with one of the magnetized element and the coil (particularly the magnetized element) fixed to move with the vehicle support and the coil being selectively actuated to provide a magnetized force resisting movement of the vehicle support as disclosed in col. 2 lines 15-18, the magnetized plunger for generating a current in the coil by the movement of the magnetized plunger, and a battery 16 in communication with the circuit.

Murty et al. lack the limitation of a magnetized element and coil assembly being in the form of a magnetized *plunger* and coil assembly.

JP-4300709 teaches in figure 1 the use of a shock absorber used in an active suspension system having a magnetized plunger 14 and coil 15 assembly in which the coil is selectively actuated to provide magnetic resistive forces.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the magnetic element and coil assembly of Murty et al. to have included a magnetic plunger and coil assembly, as taught by JP-4300709, in order to provide a simpler shock absorber apparatus that eliminates the need for a rotary-to-linear converter.

Re: claims 6 and 14. Murty et al., as modified, teach the limitation of the battery storing electric energy generated by the movement of the magnetized plunger relative to the coil. See col. 1 lines 49-51, col. 2 lines 44-46, and col. 6 lines 4-6 of Murty et al.

Re: claims 7 and 15. Murty et al., as modified, teach the limitation of the circuit comprising a switching circuit 20,22,24,26,28,30. See figure 4 of Murty et al.

Re: claim 21. Murty et al., as modified, teach in the Murty reference the limitation wherein the control 44 determines when to charge the battery based on a level of movement of the vehicle support since as shown in figure 7 of Murty et al. and as disclosed in col. 4 line 53 – col. 5 line15 and in col. 1 lines 49-51 and in col. 2 lines 44-46 it is shown that the system is in motor mode or generator mode depending on the speed and direction of actuator which is connected to the wheel.

6. Claims 2, 3, 5-7, 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP-4300709 in view of US Patent 5091679 to Murty et al.

Re: claims 2, 3, 5, 13, 15. JP '709 shows in figure 1 a vehicle suspension assembly comprising a shock absorber comprising a magnetized plunger 14, a conductive coil 15 disposed about the magnetized plunger, forming a circuit, and a vehicle support 13 attachable to a wheel 22 with one of the magnetized plunger and the

coil (particularly the magnetized plunger) fixed to move with the vehicle ground support and the coil being selectively actuated to provide a magnetized force resisting movement of the vehicle support as disclosed in col. 2 lines 20-23 (based on consultation with Japanese translator) and as suggested in lines 1-10 of the English abstract by the discussion of the suspension control being active.

JP '709 describes the invention substantially as set forth above, but does not include the limitation of a battery being in communication with the circuit.

Murty et al. teach in figure 4 the use of a shock absorber comprising a magnetized element 12 and a conductive coil 14a-14c forming a circuit, the shock absorber including a battery 16 in communication with the circuit.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the circuit of JP '709 to have included communication with a battery, as taught by Murty et al., in order to provide a means of energizing the conductive coil as taught by Murty et al. in col. 5 lines 52-55.

Re: claims 6, 14. JP '709 describes the invention substantially as set forth above, but does not include the limitation of storing in a battery energy generated by the movement of the magnetized plunger relative to the coil.

Murty et al. teach in col. 1 lines 49-51 and in col. 2 lines 44-46 the use a battery for storing electric energy generated by the suspension movements. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the circuit of JP '709 to have included communication with a battery that stores electric energy generated by the movement of the plunger relative to the coil, as

taught by Murty et al., in order to provide a means of conserving energy for later use by electrical apparatuses of the vehicle.

Re: claim 7. JP '709, as modified, shows in JP '709 the circuit comprising a switching circuit 16.

7. Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP-4300709 in view of Murty as applied to claims 7 and 15 above, and further in view of US Patent 3513408 to McGee.

JP '709, as modified, describes the invention substantially a set forth above, including the use of a switching circuit 16, but does not specifically disclose or show that the switching circuit includes a field effect transistor.

McGee teaches in figure 2 the use of a magnetized plunger/conductive coil apparatus comprising a switching circuit including a field effect transistor 11.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the switching circuit of JP '709, as modified, to have included a field effect transistor, as taught by McGee, in order to provide a device that occupies minimum real estate and that provides the advantage of a fast response time.

8. Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murty et al. in view of JP-4300709 as applied to claims 7 and 15 above, and further in view of US Patent 3513408 to McGee.

Murty et al., as modified, describe the invention substantially a set forth above,

including the use of a switching circuit but does not specifically disclose or show that the switching circuit includes a field effect transistor.

McGee teaches in figure 2 the use of a magnetized plunger/conductive coil apparatus comprising a switching circuit including a field effect transistor 11.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the switching circuit of Murty et al., as modified, to have included a field effect transistor, as taught by McGee, in order to provide a device that occupies minimum real estate and that provides the advantage of a fast response time.

9. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP-4300709 in view of US Patent 6005316 to Harris.

Re: claim 9. JP '709 describes the invention substantially as set forth above in the rejection of claims 5 and 13 except the limitation of the battery, but does not specifically state that the switching circuit switches at a higher frequency than the frequency of movement of the magnetized plunger.

Harris teaches in col. 1 lines 23-25 the use of switching circuits switching at a higher frequency than the frequency of a moving element being controlled.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the switching circuit of JP '709 to have provided switching at a higher frequency than the frequency of movement of the magnetized plunger, in view of the teachings of Harris, in order to provide a means of accurately

controlling the position of the magnetized plunger to assist in carrying out the active suspension control function.

Re: claim 10. JP '709, as modified, shows in JP '709 a shock absorber wherein a control 16 and sensor disclosed in col. 2 lines 20-23 senses movement of the vehicle ground support and selectively activates the coil when it is desired to resist movement of the vehicle ground support.

10. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP-4300709 in view of Murty et al. as applied to claim 15, and further in view of US Patent 6005316 to Harris.

JP '709 describes the invention substantially as set forth above, but does not include the limitation of the switching circuit switching at a higher frequency than the frequency of movement of the magnetized plunger.

Harris teaches in col. 1 lines 23-25 the use of switching circuits switching at a higher frequency than the frequency of a moving element being controlled.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the switching circuit of JP '709, as modified, to have provided switching at a higher frequency than the frequency of movement of the magnetized plunger, in view of the teachings of Harris, in order to provide a means of accurately controlling the position of the magnetized plunger to assist in carrying out the active suspension control function.

11. Claims 9, 10, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murty et al. in view of JP-4300709 and further in view of US Patent 6005316 to Harris.

Re: claims 9 and 17. Murty et al., as modified as set forth in the rejection of claims 5 and 15 above, describe the invention substantially as set forth above, but do not specifically state that the switching circuit switches at a higher frequency than the frequency of movement of the magnetized plunger.

Harris teaches in col. 1 lines 23-25 the use of switching circuits switching at a higher frequency than the frequency of a moving element being controlled.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the switching circuit of Murty et al., as modified, to have provided switching at a higher frequency than the frequency of movement of the magnetized plunger, in view of the teachings of Harris, in order to provide a means of accurately controlling the position of the magnetized plunger to assist in carrying out the active suspension control function.

Re: claim 10. Murty et al., as modified, teach in figure 4 of Murty et al. the use of a control 44 that senses movement of the vehicle support and selectively actuates the coil when it is desired to resist movement of the vehicle support.

Response to Arguments

12. Applicant's arguments filed 10/16/03 have been fully considered but they are not persuasive.

With respect to the rejections involving Murty et al. in view of JP '709 Applicant argues that Examiner provides no support for the motivation to combine and that Applicant can identify no portion of either reference that supports such motivation. Examiner notes that section 2143.01 of the MPEP states that motivation can be found "either explicitly or implicitly in the references OR in the knowledge generally available to one of ordinary skill in the art". Examiner maintains that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have replaced a shock absorbing assembly including a magnetized element comprising a rotary element

surrounded by coils with the rotary element being connected a rotary-to-linear converter associated with a vehicle suspension assembly with a shock absorbing assembly comprising a linearly movable magnetized plunger surrounded by coils with the plunger being connected to a portion of a vehicle suspension assembly. Examiner maintains that the modification would result in providing a functionally equivalent means of generating electromagnetic energy within the coils as a result of the motion of the magnetized element/plunger associated with the vehicle suspension. The elimination of the rotary-to-linear converter would clearly reduce the number of parts of the vehicle suspension assembly which may result in considerable space savings.

With respect to the use of the Harris reference, Applicant argues that there is no motivation or suggestion to combine the Harris reference with the base reference(s). Examiner notes that Harris teaches the use of switching circuits switching at a higher frequency than the frequency of a moving element being controlled to maintain or adjust desired position. Examiner notes that since the active shock absorbing capability of the vehicle suspension assembly of Murty et al., as modified, is based on suspension movements or, particularly, the movement of a magnetized element/plunger connected to a wheel of the vehicle suspension, providing a means of maintaining or adjusting the position of the magnetized element/plunger would be beneficial in efficiently effecting the active suspension control.

With respect to claims 18 and 21, Applicant argues that Murty et al. teaches the charging of the battery depending upon the direction of movement of the actuator which is connected to the wheel. Examiner maintains that in order to achieve the changed

directions, the actuator or wheel must undergo changes in the level or amount of movement as broadly claimed. Therefore, the rejections have been maintained.

Examiner notes that Applicant has failed to respond to the rejections using JP '709 as a base reference. Accordingly, the rejections using the JP '709 reference as a base reference have been maintained.

Conclusion

13. In order to complete the record, it should be noted that no conflict appears to presently exist between the subject matter defined by the instant claims and the subject matter of the claims of applicant's and/or assignee's copending non-published application 09/643805 cited on Applicant's form 1449 now US Patent 6361664 to Fader et al. has been made of record. Accordingly, no double patenting rejection is entered into the instant application. See MPEP 804+ concerning double patenting type of rejections, if necessary. Applicant and/or assignee should maintain this clear line of patentable distinction between the instant claims and the claims of the indicated patent application. The patent is directed to a vehicle suspension system and the application is directed to a subcombination of the vehicle suspension system or a shock absorber specifically comprising a magnetized plunger and a conductive coil with the coil being actuated to resist movement of a vehicle ground support connected to one of the plunger and the coil.

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melody M. Burch whose telephone number is 703-306-4618. The examiner can normally be reached on Monday-Friday (7:30 AM-4:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Lavinder can be reached on 703-308-3421. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

mmb 1/7/04
mmb
January 7, 2004

1/8/2004

MATTHEW C. GRAHAM
PRIMARY EXAMINER
GROUP 310